# Snapshots from the Slope

## Sharing Science from Alaska's North Slope

North Slope Science Initiative
ALASKA

# 2017
## Monthly Planner

# North Slope Science Initiative
ALASKA

## North Slope Science Initiative

Alaska's North Slope is a place where global forces have long converged. It has been a pathway for the spread of indigenous culture eastward across Arctic North America. Over the years, whalers followed bowhead whales into the pack ice; the military constructed a network of Distant Early Warning radar stations, bringing the first large-scale development to the region; and oil companies developed a large industrial complex. Today, the North Slope continues to support local communities and subsistence livelihoods as well as industrial development. The North Slope is a focal point for the growing awareness of pan-Arctic change and is used for observation and assessment of the near and long-term impacts of climate change.

To better prepare themselves to meet unparalleled challenges and opportunities for partnered science and service, a group of federal, state, local and Alaska Native resource managers formed the North Slope Science Initiative (NSSI) in 2001. The NSSI's mission is to improve scientific and regulatory understanding of terrestrial, aquatic and marine ecosystems in the context of resource development activities and climate change. Since its formation, the NSSI has helped increase collaboration and coordination among its members and with industry, academia, non-governmental organizations, the public and the whole of the Arctic community. The NSSI helps provide resource managers with access to the data and analyses they need to evaluate goals and objectives related to each agency's mission on the North Slope and adjacent seas.

*Arctic sea ice (USGS)*

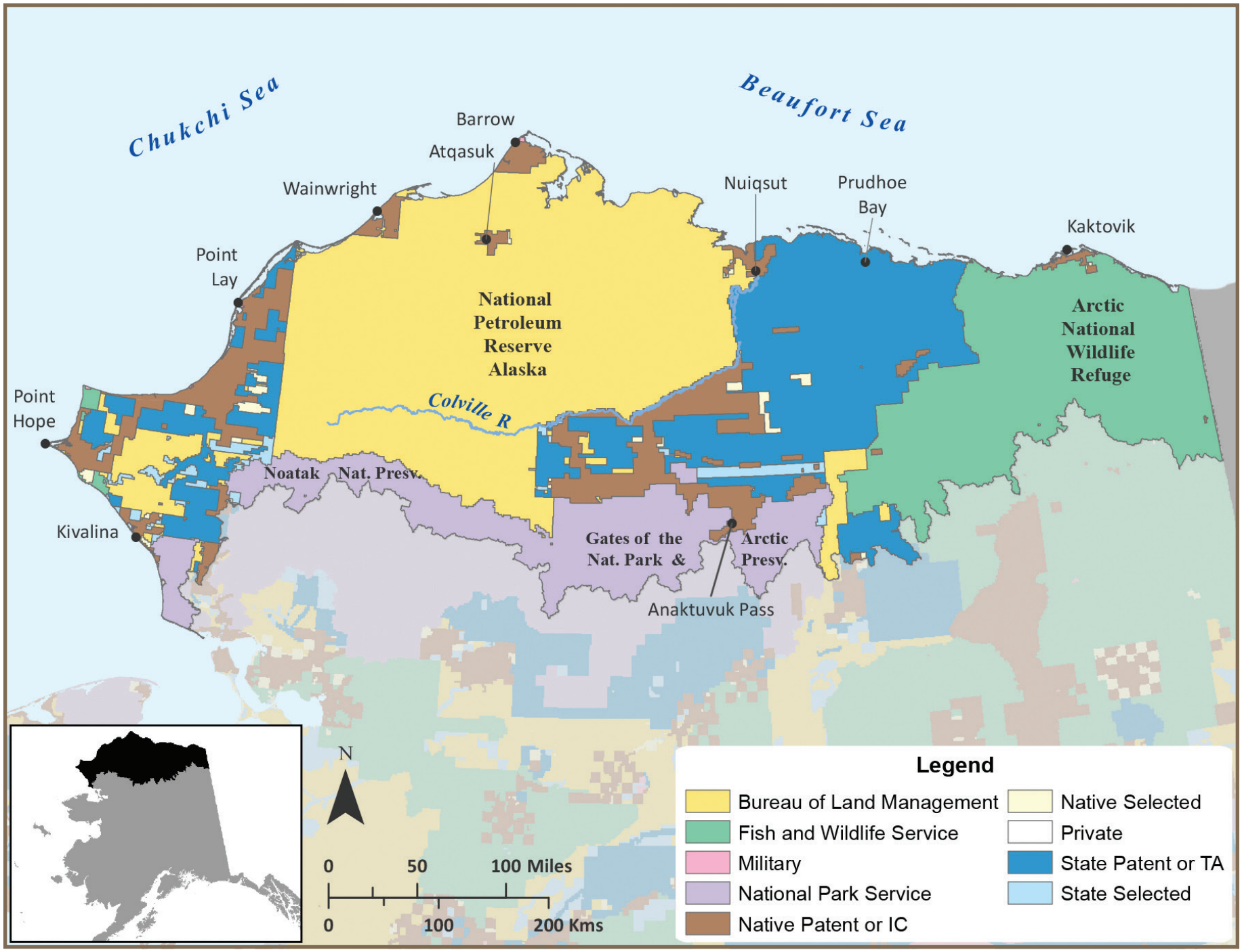
## Snapshots from the Slope:

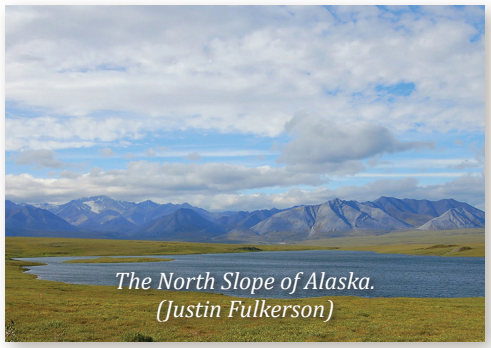
### *Sharing Science from Alaska's North Slope*

Once again this year, the North Slope Science Initiative calendar features on-the-job photos from researchers who study the Arctic. Their work, coupled with traditional knowledge, makes careful management of the region's resources possible. The Arctic's changing climate and its effects on terrestrial and aquatic ecosystems makes the work of these scientists all the more important.

While satellites and automated instruments can provide important data, there is still a need for scientists take to the skies, to the seas, to field camps, and to remote research facilities to gain a greater understanding of this region. It is in getting out onto tundra, into mountain valleys, on lakes, and in coastal waters that they can learn firsthand about the functioning of natural environments in all their complexity, diversity, and fragility. Indeed, this is what the people of the North Slope have done for millennia. In this 2017 edition of the North Slope Science Initiative calendar we've once again attempted to provide a glimpse of what researchers see when they venture afield. We hope you enjoy these *Snapshots from the Slope*.

For more information about NSSI and science on the North Slope, visit our website – www.northslope.org and follow us on social media.





*The North Slope of Alaska. (Justin Fulkerson)*

## The North Slope

The North Slope of Alaska is America's Arctic. Encompassing 203,000 square miles of land and sea, it is a vast area believed to have some of the largest oil, gas, and coal potential remaining in the United States. The North Slope and adjoining seas are also home to a diverse array of fish, wildlife, and plant resources that support a vibrant subsistence culture. In addition to sustaining these resources and planning for safe energy exploration and development, managers must consider the effects of a rapidly changing climate in their decision making. Coordinated and sustained observation, research and monitoring are vital to helping resource managers meet these challenges.

***Feature photo:*** *Researchers set up camp on the Colville River while traveling across the North Slope to survey changing lakes.*

***Inset photo:*** *Ben Jones of USGS inspects an ice core. (CALON Photo)*

# JANUARY 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| 1 New Year's Day | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 Martin Luther King Day | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31 | | | | |

*Drilling an ice core from a North Slope lake. (CALON Photo)*

## Arctic Lakes

Shallow lakes and ponds cover up to 40 percent of the Arctic lowlands. Warming climate conditions have resulted in thinner ice cover on shallow lakes and consequently, a smaller fraction of lakes are freezing all the way through during winter months. Since 2007 teams of scientists funded by the National Science Foundation have traveled hundreds of miles each year across the North Slope to learn more about these changes and how the ecosystems dependent upon these lakes are affected. In addition to NSF, partners in the Circum-Arctic Lakes Observation Network (CALON) and the Arctic Lake Ice Systems Science (ALISS) projects have included the U.S. Geological Survey, Bureau of Land Management, University of Alaska Fairbanks, University of Wyoming, and Arctic Landscape Conservation Cooperative.

***Feature photo:*** *Biologist Tom Glass prepares to place a satellite collar on a wolverine. Collars are programmed to release from the animal after three months to minimize any long-term impacts. (Ross Dorendorf/WCS Photo)*

***Inset photo:*** *A team of researchers traveled by snowmachine to set high-tech traps along rivers and streams. The traps sent emails to researchers when sprung so the team could quickly collar the wolverines to track their movements. (Tom Glass/WCS Photo)*

# FEBRUARY 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14<br>Valentine's Day | 15 | 16 | 17 | 18 |
| 19 | 20<br>President's Day | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | | | | |

***Wolverines weren't the only animals that showed interest in the traps. (WCS Photo)***

## *Wolverines*

A project led by the Wildlife Conservation Society, in cooperation with the Alaska Department of Fish and Game, is tracking wolverines with satellite collars to learn more about how the species is faring in the face of climate change. Wolverines prefer to dig dens in deep snow drifts on the banks of small streams. Populations in Arctic Alaska are thought to be relatively stable; however, the future impacts of a rapidly changing climate on the snow they rely on for denning and food caching are unknown. Partners in the project include the Bureau of Land Management, University of Alaska, North Slope Borough, and Northwest Arctic Borough.

***Feature photo:*** *A North Slope raven keeps close watch on a researcher from its perch beneath an overcast sky. (Tamara Zeller, FWS Photo)*

***Inset photo:*** *Raven on a pipeline at Prudhoe Bay (Peter Prokosch/GRID-Arendal)*

# MARCH 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 12 | 13 | 14 | 15 | 16 | 17 St. Patrick's Day | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | 31 | |

*North Slope Raven*
*(Tamara Zeller, FWS Photo)*

## Ravens

Common ravens are year-round residents of the North Slope. In recent years they have expanded their breeding range by using oil production facilities for nesting, despite efforts by oil companies to eliminate their access to food and structures for nest sites. The University of Alaska Fairbanks and Bureau of Land Management have collected data on foraging ecology, nesting, and life history of ravens in North Slope oil fields and within the National Petroleum Reserve in Alaska. In addition, BP Exploration Alaska, Inc. conducts long term monitoring of occupancy of raven nests in the Prudhoe Bay area. Additional research is needed to assess projected population growth and impacts to local prey species and tundra nesting birds.

***Feature photo:*** *Rebecca Bentzen of the Wildlife Conservation Society counting eiders at Point Barrow. (WCS Photo)*

***Inset photo:*** *Common eiders. (Tim Bowman, FWS Photo)*

# APRIL 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | | 1<br>April Fool's Day |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22<br>Earth Day |
| 23<br>30 | 24 | 25 | 26 | 27 | 28 | 29 |

*Eider counting crew on the sea ice (Tim Bowman, FWS Photo)*

## Eider Migration

King and Common Eiders are important subsistence species in Alaska, Canada and Russia. Hundreds of thousands of these ducks migrate past Point Barrow in spring and fall, making it the ideal location for a migration count. The count is a collaborative effort between the Wildlife Conservation Society, North Slope Borough, U.S. Fish and Wildlife Service, University of Alaska Fairbanks, Bureau of Ocean Energy Management, and the Sea Duck Joint Venture. From late April through early June, the eider count crew keeps watch for 12 hours each day from a perch on the edge of the sea ice. Current estimates for the Western Arctic population of the Common Eider are 100,000 to 200,000 and for the King Eider – 300,000 to 600,000. Preliminary analyses indicate that the King and Common eider populations are similar to estimates from the early 2000s.

***Feature photo:*** *Students and scientists explored the tundra and hillsides during the National Park Service BioBlitz at Anaktuvuk Pass. (Jeff Rasic/NPS Photo)*

***Inset photo:*** *Anaktuvuk Pass resident Raymond Paneak spoke about the traditional use and ecology of ptarmigan at the BioBlitz. (Jeff Rasic, NPS Photo)*

# MAY 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5<br>Cinco de Mayo | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14<br>Mother's Day | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29<br>Memorial Day | 30 | 31 | | | |

*Students get assistance at the microscope. (Sean Tevebaugh/NPS Photo)*

## Anaktuvuk Pass BioBlitz

A dozen National Park Service and University of Alaska Fairbanks scientists converged in Anaktuvuk Pass, 110 miles above the Arctic Circle, in May 2016 for an intensive inventory of the area's plants and animals. Anaktuvuk Pass is located within Gates of the Arctic National Park and Preserve. The event was one of more than 80 BioBlitzes held across the country as part of the NPS Centennial and it was the farthest north by far. With help from volunteers, local organizations, students and elders the event provided an opportunity for the exchange of traditional knowledge as well as scientific documentation.


***Feature photo:*** *The Teshekpuk Lake Observatory at midnight, summer solstice 2015. (Ben Jones/USGS Photo)*

***Inset photo:*** *USGS Research Geographer Ben Jones at the Teshekpuk Lake Observatory. (USGS Photo)*

# JUNE 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14<br>Flag Day | 15 | 16 | 17 |
| 18<br>Father's Day | 19 | 20<br>Summer Solstice | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | |

*Teshekpuk Lake Observatory before the snow melts. (USGS Photo)*

## Teshekpuk Lake Observatory

The name Teshekpuk is derived from an Iñupiaq word meaning "big coastal lake." At 320 square miles it is the third largest lake in Alaska and the largest in Arctic Alaska. In 1963, Max Brewer, the director of Barrow's Naval Arctic Research Laboratory, constructed several small buildings at Teshekpuk to serve as a research outpost. In recent years Ben Jones of USGS has worked with scientists from the North Slope Borough Department of Wildlife Management to make the buildings that remain usable again. A cabin at the site is used to house researchers doing field work and a small outbuilding holds a satellite dish, wind turbine, and weather station.

***Feature photo:*** *The Porcupine River in the Arctic National Wildlife Refuge was one of the areas surveyed as part of the Alaska Landbird Monitoring Survey in 2016. (David Loomis/FWS Photo)*

***Inset photo:*** *The white crowned sparrow was among the most common landbirds detected during the survey. (Donna Dewhurst/FWS Photo)*

# JULY 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | | 1 |
| 2 | 3 | 4 Independence Day | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 / 30 | 24 / 31 | 25 | 26 | 27 | 28 | 29 |

***Swainson's Thrush (Matt Reinbold photo)***

## Porcupine River Bird Survey

Alaska provides breeding habitat for 135 species of landbirds. While road-based surveys provide some data on population trends, most northern species are not adequately monitored due to a lack of roads in Alaska. The Alaska Landbird Monitoring Survey (ALMS) was developed to monitor long-term population trends, determine abundance by habitat, and model distribution across Alaska. ALMS is a collaborative program whereby agencies conduct standardized surveys of birds and habitat on the lands they manage and provide data to the U.S. Geological Survey. Among the participating agencies are the Alaska Department of Fish and Game, Bureau of Land Management, National Park Service, USDA Forest Service and U.S. Fish and Wildlife Service.

***Feature photo:*** *Teshekpuk caribou. The herd's calving area is mainly east and north of Teshekpuk Lake. (Brian Person, NSB Photo)*

***Inset photo:*** *Biologists Brian Person with the North Slope Department of Wildlife Management and Lincoln Parrett with the Alaska Department of Fish and Game release a caribou after fitting it with a monitoring collar. (NSB Photo)*

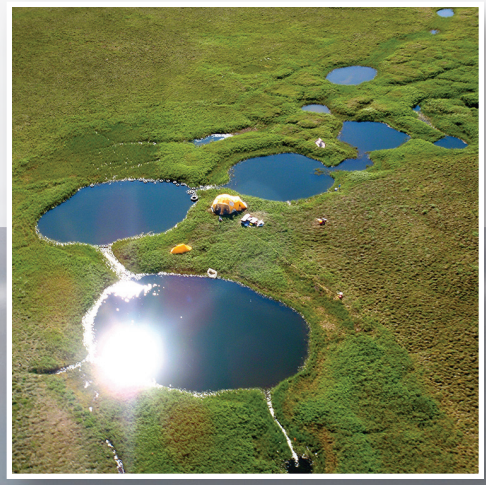
# AUGUST 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | | |

*Teshekpuk caribou in the National Petroleum Reserve in Alaska. (Bob Wick/BLM Photo)*

## Teshekpuk Caribou

The Teshekpuk caribou herd is an important subsistence resource for at least five North Slope Villages. Understanding the distribution and movement of the herd is important in determining if oil and gas exploration and development are having an impact on the herd and how any impacts might be mitigated. The North Slope Borough Department of Wildlife Management is working with the Alaska Department of Fish and Game and Bureau of Land Management to use satellite transmitter collars to track caribou to learn more about the areas they use and when they use them.

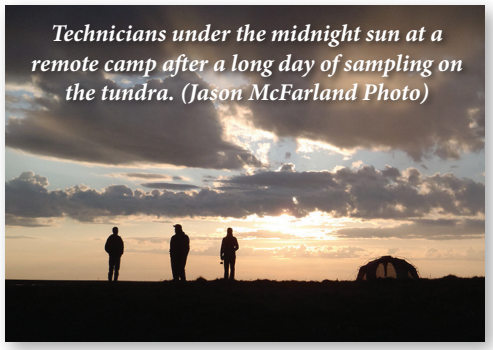


***Feature photo:*** *Fishery technicians collecting Arctic grayling from a beaded stream in the National Petroleum Reserve in Alaska. (Jason McFarland Photo)*

***Inset photo:*** *Beaded streams consist of pools of water connected by narrow, incised stream channels. (Jason McFarland Photo)*

# SEPTEMBER 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 Labor Day | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 |



*Technicians under the midnight sun at a remote camp after a long day of sampling on the tundra. (Jason McFarland Photo)*

## Arctic Grayling

Arctic Grayling are widely distributed on the Arctic Coastal Plain of Alaska, but little is known about their feeding habits. Beaded streams, consisting of pools of water connected by narrow channels, appear to be crucial foraging grounds for Arctic grayling and other fish. They provide important migratory routes and habitat. In a study funded by the Bureau of Land Management, Jason McFarland of the University of Alaska Fairbanks studied the sources of food for Arctic Grayling within beaded streams. The study provides essential baseline information to learn how these freshwater ecosystems may respond to petroleum development and climate change.

***Feature photo:*** *An octopus collected in a bottom trawl of the Chukchi Sea (NSB Photo)*

***Inset photo:*** *Dr. Leandra Sousa of the North Slope Borough Department of Wildlife Management and Dr. Alexei Pinchuk of the University of Alaska Fairbanks trawling for zooplankton samples in the Chukchi Sea. (NSB Photo)*

# OCTOBER 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8 | 9<br>Columbus Day | 10 | 11 | 12 | 13 | 14 |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| 29 | 30 | 31<br>Halloween | | | | |

*Biologists collecting fish with a midwater trawl. (NSB Photo)*

## Trawl Studies

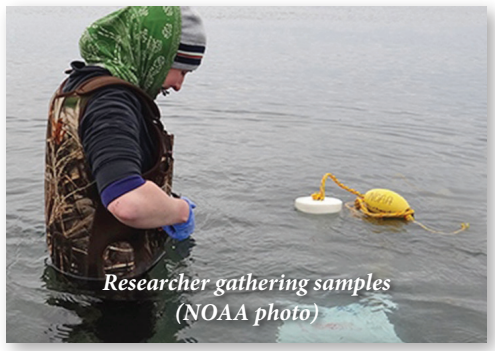
Trawl studies are conducted at various depths in the Beaufort and Chukchi Seas to learn more about the distribution and abundance of Arctic marine fish species. These fish support a large number of seabirds and marine mammals who migrate to the Arctic. A number of cooperative studies by the North Slope Borough, National Oceanic and Atmospheric Administration, Bureau of Ocean Energy Management, Shell, and the University of Alaska Fairbanks provide important baseline information to help resource managers understand the effects of climate change, petroleum development, and increased marine traffic on marine ecosystems.

***Feature photo:*** *Collecting larval fish and plankton from a beach seine near Point Barrow during the guidelines' field testing phase. (NOAA Photo)*

***Inset photo:*** *Preparing to deploy a beach seine net around broken sea ice on the Chukchi Sea coast. (NOAA Photo)*

# NOVEMBER 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 Veteran's Day |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 Thanksgiving | 24 | 25 |
| 26 | 27 | 28 | 29 | 30 | | |



*Researcher gathering samples (NOAA photo)*

## Spill Response Preparedness

The decline in Arctic sea ice and the resulting increase in marine traffic and oil exploration have heightened the need for oil spill response planning. The National Oceanic and Atmospheric Administration's Office of Response and Restoration has created guidelines for collecting high-priority, time-sensitive natural resource information in the event of an Arctic oil spill. The guidelines help ensure that the appropriate data is collected to support damage assessment. NOAA scientists field tested the guidelines to make sure they could be implemented in the often challenging Arctic environment.

***Feature photo:*** *A polar bear pounds on a seal den.*

***Inset photo:*** *A ribbon seal rests on an ice floe.*
*(Photos by Caitlin Bailey, Global Foundation for Ocean Exploration, NOAA, and UAF, Hidden Ocean 2016.)*

# DECEMBER 2017

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|---|---|---|---|---|---|---|
| | | | | | 1 | 2 |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 24 31 New Year's Eve | 25 Christmas Day | 26 | 27 | 28 | 29 | 30 |


*The Coast Guard Cutter Healy. (Microcosm Film Photo, Chukchi Borderlands 2016)*

## Marine Mammals

During the summer of 2016 an international, multi-disciplinary team sailed to the Chukchi Borderlands on the U.S. Coast Guard Cutter Healy. The expedition was coordinated by the National Oceanic and Atmospheric Administration's Office of Ocean Exploration and Research. It included studies of marine mammals, seabirds, fish, zooplankton and climate change in the Arctic. While the vessel was under way, a marine mammal watch was held on the bridge to learn more about the species present on the journey to the high Arctic.

North Slope Science Initiative
ALASKA

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***Front Cover Photo:*** *Technicians under the midnight sun at a remote camp after a long day of sampling on the tundra (Jason McFarland Photo)*

***Back Cover Photo:*** *Late summer field work in the Arctic foothills (USGS Photo)*

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